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(54) **Simultaneous dyeing and bleaching of human hair using two-component formulation**

(57) **A storable two-component formulation for preparation of a pasty spreadable formulation for the treatment of human hair, comprises:-**

A. a pulverulent component comprising

- a) at least one wetting agent**
- b) at least one inorganic and/or organic thickening agent,**
- c) at least one dyestuff**
- d) at least one solid per-compound,**
- e) at least one alkalizing agent, and optionally**
- f) customary additives, and**
- g) complexing agents, component A being in anhydrous form, and**

B. a liquid component, comprising

- h) an aqueous hydrogen peroxide solution with a hydrogen peroxide content of 5 to 18% by weight, and optionally**
- i) complexing agents.**

The components, after being combined, produce coloured highlighted dyeings when spread onto the hair, the operations previously required and carried out separately, i.e. bleaching or dyeing blond and dyeing, being combined into a single operation.

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Two-Component Formulation for the Treatment of Human Hair

The invention relates to a two-component formulation for preparation of a pasty spreadable formulation for the treatment of human hair, a pasty spreadable formulation for the treatment of human hair, and a method for the treatment of human hair.

The invention seeks to provide a storable two-component formulation which, after being combined by mixing, is in the form of a pasty spreadable preparation (formulation) for the treatment of human hair. The preparation spread onto the hair seeks to produce coloured highlighted strands on dark human hair without bleaching or blonding operations having first taken place as is conventional. The present invention also seeks to provide a combination of the two operations previously required, and which are carried out separately, i.e combining

1. bleaching or dyeing blond and
2. dyeing,

into a single operation. The present invention further seeks to provide a method for the treatment of human hair which eliminates the need for the two separate bleaching or dyeing blond and dyeing operations.

According to one aspect of the invention there is provided a two-component formulation for the preparation of a pasty spreadable formulation for the treatment of human hair, comprising

- A. a pulverulent component comprising
 - a) at least one wetting agent
 - b) at least one inorganic and/or organic thickening agent,
 - c) at least one dyestuff,
 - d) at least one solid per-compound,
 - e) at least one alkalizing agent, and optionally
 - f) customary additives, and
 - g) complexing agents, component A being in anhydrous form, and
- B. a liquid component, comprising
 - h) an aqueous hydrogen peroxide solution with a hydrogen peroxide content of 5 to 18% by weight, and optionally
 - i) complexing agents.

According to another aspect of the invention there is provided a pasty spreadable formulation for the treatment of human hair, comprising a mixture of components A and B.

According to another aspect of the invention there is provided a method for the treatment of human hair, wherein the formulation comprising a mixture of components A and B is spread onto the hair; the hair, which is bleached and dyed in one step by the spreading and action of the formulation, is washed and after-treated in the customary manner.

According to a further aspect of the invention there is provided a method for the preparation of a pasty spreadable formulation, wherein components A and B are mixed together.

Various preferred features and embodiments of the invention will now be described by way of non-limiting example.

The two-component formulation consists of a first pulverulent component A and a second liquid component B, which are conveniently each prepared and packaged separately and can be processed by intensive mixing, just before use, to a pasty spreadable formulation for the treatment of human hair. The method for the treatment of human hair can subsequently be performed.

Examples of the constituents of the first pulverulent component A are described below.

Wetting agents which can be used include conventional wetting agents which are used in cosmetics and are in dry pulverulent form. Preferred wetting agents of this type are: sodium stearate, aluminium distearate, fatty acid condensation products based on saturated or unsaturated fatty acids of various chain lengths and taurine, methyltaurine or hydroxyethanesulphonic acid, fatty acid ethionate, sodium salt, and sodium laurylsulphate, either individually or preferably as a mixture, and the amount thereof in component A is preferably 1 to 20% by weight.

Inorganic and/or organic thickening agents which can be used and which are preferably present in component A in amounts of 0.1 to 10% by weight, include thickening agents conventionally used in cosmetics, such as disperse silicic acid, hydroxypropylcellulose and derivatives thereof.

Especially preferred are acrylic acid polymers and derivatives thereof.

Dyestuffs which can be used include dyestuffs permitted for dyeing hair, examples of which may include as aromatic nitro dyestuffs, 1,4-diamino-2-nitrobenzene, 3-nitro-4-(3-hydroxypropyl)-aminophenol, 1-(2-hydroxyethylamino)-2-nitro-4-aminobenzene, 4-amino-2-nitrophenol, 4-nitro-o-phenylenediamine, p-nitro-o-aminophenol, 1-amino-2-nitro-4-bis-(2-hydroxyethyl)-aminobenzene, 1,4-di-(2-hydroxyethylamino)-2-nitrobenzene, 3-nitro-4-aminophenol, HC Blue 2 and HC Yellow 4; azo dyestuffs, such as Direct Violet 51, Basic Yellow 57, Basic Blue 99, Basic Red 22, Basic Brown 16, Basic Brown 17, Basic Red 76 and Basic Yellow 57, and anthraquinone dyestuffs, such as Solvent Violet 12 and Disperse Blue 1.

The dyestuffs are preferably present in component A in an amount of 0.1 to 90% by weight.

Examples of solid per-compounds, which generally contain two oxygen atoms linked together and which should be water-soluble but should not be fat-soluble in order to protect the scalp, include, for example, alkali metal and/or ammonium persulphates, percarbonates, perborates and peroxides, which are preferably present in component A in amounts of 1 to 60% by weight.

Pulverulent dry alkalizing agents which can be used include, for example, alkali metal and alkaline earth metal hydroxides, alkali metal silicates and alkali metal carbonates. Component A preferably contains enough alkalizing agent for the pH to be between 10 and 12 after mixing with component B.

Customary additives which may be used include, for example, aluminium silicates, magnesium silicates, calcium carbonate, magnesium carbonate, talc, alkali metal and ammonium pyrophosphates and alkali metal and ammonium hydrogen or dihydrogen phosphates, either individually or as a mixture.

The amount in the mixture of these additives in component A is preferably between zero and 50% by weight.

Complexing agents which may be used include ethylenediamine-tetraacetic acid and its alkali metal and ammonium salts.

The liquid component comprises an aqueous hydrogen peroxide solution with a hydrogen peroxide content of 5 to 18% by weight, and optionally complexing agents and preferably the aqueous hydrogen peroxide solution has a hydrogen peroxide content of about 6% by weight.

The pasty spreadable formulation preferably comprises 30 to 35% by weight of component A and 70 to 65% by weight of component B, wherein the percentages by weight must make up 100% by weight.

The invention will now be illustrated with reference to the following non-limiting examples:

Example 1

Component A

a)	Sodium stearate	11.0 g
a ₁)	Aluminium distearate	2.7 g
a ₂)	Sodium laurylsulphate (Duponol C)	1.0 g
b)	Disperse silicic acid (Aerosil 200)	9.1 g
b ₁)	Hydroxypropylcellulose	2.7 g
c)	<u>Basic Red 22 (Maxilonrot BL)-Q70</u>	<u>10.0 g</u>
d)	<u>Potassium persulphate</u>	<u>31.5 g</u>
d ₁)	<u>Ammonium persulphate</u>	19.0 g
e)	Sodium metasilicate	12.0 g
f)	Disodium salt of ethylenediamine-tetraacetic acid	<u>1.0 g</u>
		<u>100.0 g</u>

Component B

<u>Water</u>	188 g
<u>Hydrogen peroxide (100% strength)</u>	<u>12 g</u> → 6% by wt.
	<u>200 g</u>

Ready-to-use pasty spreadable formulation for the treatment of human hair

100 g of the component A obtained above may be mixed thoroughly with 200 g of the component B obtained above until a homogeneous preparation is present, which may be used immediately for the treatment of human hair.

Example 2

Component A

a)	Fatty acid isothionate, sodium salt (Hostapon KA)	0.5 g
b)	Acrylic acid polymer	2.0 g
c)	<u>HC Yellow 4</u>	<u>20.0 g</u>
d)	<u>Potassium persulphate</u>	<u>18.0 g</u>
d ₁)	<u>Sodium persulphate</u>	<u>10.0 g</u>
e)	Sodium carbonate	5.0 g
f)	Sodium pyrophosphate	8.0 g
f ₁)	<u>White talc</u>	<u>25.0 g</u>
f ₂)	Magnesium carbonate (Carbopol 934)	8.0 g
f ₃)	Diammonium hydrogen phosphate	<u>3.5 g</u>
		<u>100.0 g</u>

Component B

<u>Hydrogen peroxide solution</u>	
containing:	200.0 g
<u>Water</u>	188.0 g
<u>Hydrogen peroxide</u>	<u>12.0 g</u>
	<u>200.0 g</u>

Ready-to-use pasty spreadable formulation for the treatment of human hair

100 g of the component A obtained above may be mixed thoroughly with 200 g of the component B obtained above until a homogeneous preparation is present, which may be used immediately for the treatment of human hair. The hair may be conveniently treated with the formulation in the desired zones. The formulation may in general be allowed to act for about 30 to 45 minutes.

The hair may then be rinsed with water, dried and styled in the usual manner.

CLAIMS:

1. A two-component formulation for the preparation of a pasty spreadable formulation for the treatment of human hair, comprising
 - A. a pulverulent component comprising
 - a) at least one wetting agent
 - b) at least one inorganic and/or organic thickening agent,
 - c) at least one dyestuff,
 - d) at least one solid per-compound,
 - e) at least one alkalizing agent, and optionally
 - f) customary additives, and
 - g) complexing agents, component A being in anhydrous form, and
 - B. a liquid component, comprising
 - h) an aqueous hydrogen peroxide solution with a hydrogen peroxide content of 5 to 18% by weight, and optionally
 - i) complexing agents.
2. A two-component formulation according to claim 1 wherein the aqueous hydrogen peroxide solution of component B has a hydrogen peroxide content of about 6% by weight.
3. A pasty spreadable formulation for the treatment of human hair, comprising a mixture of components A and B according to either of claims 1 or 2.
4. A formulation according to claim 3 comprising 30 to 35% by weight of component A and 70 to 65% by weight of component B, wherein the percentages by weight must make up 100% by weight.
5. A method for the treatment of human hair, wherein the formulation according to either of claims 3 and 4 is spread onto the hair; the hair, which is bleached and dyed in one step by the spreading and action of the formulation, is washed and after-treated in the customary manner.

6. A method for the preparation of a pasty spreadable formulation according to either of claims 3 and 4, wherein components A and B according to either of claims 1 and 2 are mixed together.
7. A two-component formulation substantially as herein described with reference to the accompanying examples.
8. A pasty spreadable formulation substantially as herein described with reference to the accompanying examples.
9. A method for the treatment of human hair substantially as herein described with reference to the accompanying examples.
10. A method for the preparation of a pasty spreadable formulation substantially as herein described with reference to the accompanying examples.